

# XINTONG HAN

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## Education

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Ph.D. in Electrical and Computer Engineering  
**University of Maryland, College Park**  
B.E. in Information Engineering  
**Shanghai Jiao Tong University**

*Sept. 2013 - present*  
- Advisor: Prof. Larry Davis  
*Sept. 2009 - July 2013*  
- Advisor: Prof. Weiyao Lin

## Research Interests

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- **Computer Vision and Machine Learning.** I am especially interested in large-scale image/video understanding and bridging visual and textual knowledge.

## Experience

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**Research Assistant**  
**University of Maryland, College Park**

*Jun. 2014 - present*  
**Advisor: Prof. Larry Davis**

- Proposed a detection-based parametric graph-cut method for accurate image segmentation.
- Developed a method to select relevant web trained concepts for automated event retrieval, and showed its effectiveness in zero-shot learning setting.
- Proposed a real-time video retrieval system based on input text queries without any video training samples. (Under major revision of TMM)
- Introduced an automatic spatial-aware concept discovery approach using weakly labeled image-text data from shopping websites. (Paper submitted to CVPR 2017)
- Created a dataset for tampered face detection, and developed methods that can identify faces that have been tampered with in images.

**Software Engineering Intern**  
**Google Inc.**

*May. 2016 - Aug. 2016*  
**Advisor: Phoenix X. Huang**

- Designed an aesthetic classifier for refining image search results to encourage users browse more images.
- Trained a neural network that can jointly predict attributes of a shopping product and retrieve similar products.
- Used an LSTM based product name generator for fashion product description generation and product retrieval.

**Software Engineering Intern**  
**Google Inc.**

*Jun. 2015 - Aug. 2015*  
**Advisor: Yunqing Wang**

- Worked on reducing the computational complexity for VP9 video codec.
- Proposed a machine learning-based algorithm for the block partitioning process to reduce the encoding time.
- Wrote design documents and a conference paper on the algorithm.

**Teaching Assistant**  
**University of Maryland, College Park**

*Sept. 2013 - May. 2014*

- ENEE 426: Communication Networks (Prof. Mark Shayman, Fall 2013)
- ENEE 222: Element of Discrete Signal Analysis (Prof. Adrian Papamarcou, Spring 2014)

**Research Assistant**  
**Shanghai Jiao Tong University, China**

*Dec. 2011 - Jul. 2013*  
**Advisor: Prof. Weiyao Lin**

- Proposed an algorithm for periodic motions detection in video sequences using ROI-based similarity measure.

- Developed a news video analysis system using MFC and OpenCV, this system can do video scene segmentation, face recognition, and extract the news subtitles using OCR.
- Built an image visualization system, which can help users browse image collection effectively and make image collages.

## Publications

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- C. Castillo, S. De, **Xintong Han**, B. Singh, A. Yadav, and T. Goldstein, “Son of Zorn’s Lemma: targeted style transfer using instance-aware semantic segmentation,” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017 (oral). (to appear)
- **Xintong Han\***, B. Singh\*, Z. Wu, V. I. Morariu, and L. S. Davis, “Selecting Relevant Web Trained Concepts for Automated Event Retrieval,” *IEEE International Conference on Computer Vision (ICCV)*, 2015. (\* denotes equal contribution)
- **Xintong Han**, Y. Wang, Y. Xu, and J. Bankoski, “Machine Learning-based Early Termination in Prediction Block Decomposition for VP9,” *IS&T/SPIE Electronic Imaging*, 2016.
- **Xintong Han**, C. Zhang, W. Lin, M. Xu, B. Sheng, and T. Mei, “Tree-based Visualization and Optimization for Image Collection,” *IEEE Transactions on Cybernetics*, 2015.
- B. Singh, **Xintong Han**, Z. Wu, and L. S. Davis, “PSPGC: Part-Based Seeds for Parametric Graph-Cuts,” *Asian Conference on Computer Vision (ACCV)*, 2014.
- X. Su, W. Lin, X. Zheng, **Xintong Han**, H. Chu, and X. Zhang, “A New Local-Main-Gradient-Orientation HOG and Contour Differences based Algorithm for Classification,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2013.
- **Xintong Han**, G. Li, W. Lin, X. Su, H. Li, and H. Wei, “Periodic Motion Detection with ROI-based Similarity Measure and Extrema-based Reference-frame Selection,” *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, 2012.
- Y. Tao, Y. Chen, W. Lin, **Xintong Han**, H. Li, Z. Lu, “A Patch-based Framework for Detecting Abnormal Activities with a PTZ Camera,” *IEEE Visual Communications and Image Processing (VCIP)*, 2012.

## Honors and Awards

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- The Jimmy H.C. Lin Graduate Scholarship for Entrepreneurship 2013
- Outstanding Graduate Award of Shanghai Jiao Tong University 2013
- Shanghai Scholarship (**top 2%**) 2010 - 2012
- Excellent Academic Scholarship of SJTU (**top 5%**) 2009 - 2012
- National Scholarship (**top 1%**) 2009 - 2010

## Skills

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- **Languages:** C/C++, Matlab, Python, VHDL,  $\LaTeX$ , HTML
- **Operating Systems:** Linux, Windows, Mac OS
- **Tools:** OpenCV, VLfeat, Caffe, Theano, Tensorflow